5.4 CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

This rating system was designed to differentiate between wetlands based on their sensitivity to disturbance, their significance, their rarity, our ability to replace them, and the functions they provide. The first four criteria can be considered as values that are somewhat independent of the functions provided by a wetland. Questions SC 1 to SC 6 provide the information needed to identify and rate the wetlands with these special characteristics. These types of wetlands have an importance or value that may supercede their functions. **You should determine whether the wetland being rated meets any of the conditions described below as well as answering the questions about functions.**

SC 1.0 Estuarine wetlands

SC 1.1. Estuarine wetlands are vegetated, tidal fringe, wetlands where the concentration of salt in the water is greater than 0.5 parts per thousand (see p. 24). Estuarine wetlands of any size within National Wildlife Refuges, National Parks, National Estuary Reserves, Natural Area Preserves, State Parks, or Educational, Environmental or Scientific Reserves designated under WAC 332 30 151 are rated a Category I.

SC 1.2 Estuarine wetlands in which the salt marsh vegetation extends over more than 1 acre, and that meet at least two of the following three criteria are rated a Category I.

- The wetland is relatively undisturbed. This means it has no ditching, filling, cultivation, grazing, and the vegetation has less than 10% cover of non-native plant species. NOTE: If the non-native *Spartina* spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of *Spartina* would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of *Spartina* in determining the size threshold of 1 acre.
- At least ¾ of the landward edge of the wetland has a 100 ft buffer of ungrazed pasture, shrub, forest, or relatively undisturbed freshwater wetland. A relatively undisturbed dike with vegetation that is not cut or grazed can count as an undisturbed buffer.
- The vegetated areas of the wetland have at least two of the following structural features: tidal channels, depressions with open water, or contiguous freshwater wetlands.

SC 1.3 Any estuarine wetland that does not meet the criteria above for a Category I becomes a Category II wetland.

Note: Eel grass beds do not fall within the definition of vegetated wetlands used in the rating system. They are an important aquatic resource but they do not fall within the purview of this rating system.

SC 2.0 Natural Heritage wetlands

Is the wetland a Natural Heritage Wetland?

Wetlands that are Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. To answer this question you first need to determine if the Section, Township, and Range (S/T/R) within which the wetland is found contains a Natural Heritage site (Question SC 2.1 on the rating form). Appendix D lists this information for Washington as of March 2003. If the site does not fall within the S/T/R's listed, it is not a heritage site. *(This question is used to screen out most sites before you need to contact WNHP/DNR).* More up-to-date information may be available on the Natural Heritage internet site at (http://www.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf).

If, however, the wetland being rated falls within one of the Section/Township/Ranges listed, you will need to contact the Natural Heritage Program directly to find out if the wetland is a heritage site (Questions SC 2.2 and SC 2.3). Procedures for requesting this information are available on their web site http://www.dnr.wa.gov/nhp/refdesk/index.html (as of July 2004). Another option is to contact the Natural Heritage Program by calling 360-902-1667. You should ask whether the wetland has been identified as a heritage wetland. The Natural Heritage Program will provide information on whether the site contains a Natural Heritage plant community, sensitive species or T/E plant species. If it does it is a Category I wetland.

SC 3.0 Bogs

Is the wetland a bog? If the wetland meets the criteria for bogs described below, it is a Category I or II wetland. Bogs cannot be replicated through compensatory mitigation and are very sensitive to disturbance.

The terms associated with bogs are complex and often confusing (e.g. bogs, fens, mires, peat bogs, Sphagnum bogs, heath). Bogs occupy one end of a gradient of wetlands dominated by organic soils, low nutrients, and low pH (between 3.5 and 5.0). Bogs are generally acidic, and have low levels of nutrients available for plants due to receiving water primarily from precipitation. Plants growing in these sensitive wetlands are specifically adapted to such conditions, and are usually not found, or uncommonly found, elsewhere. Relatively minor changes in the water regime or nutrient levels in bogs may cause major changes in the plant community. Bogs, and their associated acidic peat environment, provide a habitat for unique species of plants and animals. The ground is usually very spongy and covered with mosses (often of the genus *Sphagnum*). Some bogs will actually float on top of a lake or pond.

Forested bogs are more difficult to identify. Bogs may contain highly stunted individual trees of sitka spruce, western red cedar, western hemlock, lodgepole pine, western white pine, Engelmann's spruce, sub-alpine fir, aspen, or crab apple. However, some bogs contain mature, full-size, trees especially on the Long Beach Peninsula. These wetlands contain mature, full-sized trees of sitka spruce, western red cedar, western hemlock, lodgepole pine, western white pine, Engelmann's spruce, or aspen.

The trees grow very slowly and may take many centuries to reach sizes common in much younger forests. The characteristics that typically identify these forests as bogs are peat soils and, frequently, the presence of shrub or herbaceous bog species such as Sphagnum moss. Sphagnum or other bog species may only cover a small portion of the ground, especially if there are pools of standing water in the forest or if there is substantial litter.

Identifying bogs can be challenging, particularly in a forested setting. It is necessary to confirm the presence of organic soils by digging soil pits, and it further requires the identification of particular plant species. It may also be difficult to determine the boundaries of a bog.

Key for Identifying Bogs in the Rating System

1. Does the wetland have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)

Yes - go to Q. 3 No - go to Q. 2

The following description of organic soils is from the Natural Resources Conservation Service (formerly the Soil Conservation Service). Soils with an organic carbon content of 18% or more (excluding live roots) if the mineral fraction contains more than 60% clay; 2) soils with an organic carbon content of 12% if the mineral fraction contains no clay; or 3) soils with an organic carbon content between 12-18% based on the percentage of clay present (multiply the actual percentage of clay by 0.1 and add to 12%). It is not usually necessary, however, to do a chemical analysis of the soil to determine if a soil is organic. Organic soils are easy to recognize as black- colored mucks or as black or dark brown peats. Mucks feel greasy and stain fingers when rubbed between the fingers. Peats have plant fragments visible throughout the soil and feel fibrous. Many organic soils, both peats and mucks, may smell of hydrogen sulfide (rotten eggs).

2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?

Yes - go to Q. 3 No - **Is not** a bog for purpose of rating

3. Does the wetland have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)?

Yes – **Is a bog** for purpose of rating No - go to Q. 4

NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species are present in Table 3, the wetland is a bog.

4. Is the wetland forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the

bog species plant list in Table 3 as a significant component of the ground cover (> 30% coverage of the total shrub/herbaceous cover)?

Yes – **Is a bog** for purpose of rating No - **Is not** a bog for purpose of rating

NOTE: Total cover is estimated by assessing the area of wetland covered by the shadow of plants if the sun were directly overhead. You are trying to determine whether 30% of the total "footprint" of plants on the site consists of plant species listed in Table 3.
If the wetland can be identified as a relatively undisturbed bog, the category rating is based on its size. Bogs larger than ½ acre are Category I wetlands, and bogs between ¼ and ½ acre are Category II wetlands. If the bog is less than ¼ acre it should be rated based on its functions only.

Table 3
Characteristic bog species in Washington State

Andromeda polifolia	Bog rosemary
Betula glandulosa	Bog birch
Carex aquatilis	
Carex atherodes	Awned sedge
Carex brunescens	Brownish sedge
Carex buxbaumii	Brown bog sedge
Carex canescens	Hoary sedge
Carex chordorhiza	Creeping sedge
Carex comosa	Bearded sedge
Carex echinata var phyllomania	
Carex lasiocarpa	Woolly-fruit sedge
Carex leptalea	Bristly-stalk sedge
Carex limosa	Mud sedge
Carex livida	Livid sedge
Carex paupercula	Poor sedge
Carex rostrata	Beaked sedge
Carex saxatilis	Russet sedge
Carex sitchensis	Sitka sedge
Carex interior	Inland sedge
Carex pauciflora	Few-flower sedge
Carex utriculata	Bladder sedge
*Cladina ran*gifera	Reindeer lichen
Drosera rotundifolia	Sundew
Eleocharis pauciflora	Few-flower spike rush
Empetrum nigrum	Black crowberry
Eriophorum chamissonis	Cottongrass
Eriophorum polystachion	Coldswamp cottongrass
Fauria crista-galli	Deer-cabbage
Gentiana douglasiana	Swamp gentian
Juncus supiniformis	Hairy leaf rush
Kalmia occidentalis	Bog laurel
Ledum groenlandicum	Labrador tea

Menyanthes trifoliata	Bog bean
Myrica gale	Sweet gale
Pedicularis groenlandica	Elephant's-head lousewort
Platanthera dilatata	Leafy white orchid
Potentilla palustris	Marsh cinquefoil
Rhynchospora alba	White beakrush
Salix commutata	Under-green willow
Salix eastwoodiae	Mountain willow
Salix farriae	Farr willow
Salix myrtillifolia	Blue-berry willow
*Salix planifoli*a	Diamond leaf willow
Sanguisorba officinalis	Great burnet
Sphagnum spp.	Sphagnum mosses
Spiranthes romanzofianna	Hooded ladies'-tresses
Tofieldia glutinosa	Sticky false-asphodel
Vaccinium oxycoccus	Bog cranberry

NOTE: Latin names and spelling are based on the U.S. Fish and Wildlife Service, "National List of Plant Species that Occur in Wetlands: Washington". Biological Report May 1988.NERC-88/18.47.

If in doubt, it is important to consult someone with expertise in identifying bogs. The intent of the criteria is to include those bogs that have relatively undisturbed native plant communities.

SC 4.0 Forested Wetlands - *Does the wetland have at least 1 acre of forest that meet the criteria for the Department of Fish and Wildlife's old-growth or mature forests?*

To answer this question you will need to map out the areas of the wetland that are forested (see question H 1.1 on p. 72). You will then have to determine if the trees in at least one acre of the wetland are old enough, or large enough, to meet the criteria for priority habitats listed below.

- Old-growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age **or** have a diameter at breast height (dbh) of 32 inches (81 cm) or more.

  NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is an "OR" so old-growth forests do not necessarily have to have trees of this diameter. Unpublished data collected in wetlands suggest that 200 year-old trees may have different diameters.

- Mature forests: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old **or** have average diameters (dbh) exceeding 21 inches (53cm); canopy cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.

  NOTE: The criterion for dbh is based on measurements for upland forests.

Eighty to 200 year-old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is an "OR" so mature forests do not necessarily have to have trees of this diameter.

If you have one acre of old-growth or mature forest the wetland is Category I. If only part of the wetland is forested, and the category based on functions is II or III, the wetland may be assigned a dual rating as described in Section 4.3.

SC 5.0 Wetlands in Coastal Lagoons

Coastal lagoons are shallow bodies of water, like a pond, partly or completely separated from the sea by a barrier beach. They may, or may not, be connected to the sea by an inlet, but they all receive periodic influxes of salt water. This can be either through storm surges overtopping the barrier beach, or by flow through the porous sediments of the beach. Coastal lagoons may have freshwater flowing into one side that dilutes the salinity below the 0.5 ppt. The seaward edges of the lagoons, however, always contain some salt water.

Does the wetland meet all of the following criteria for a wetland in a coastal lagoon?

To be rated as a wetland in a coastal lagoon, a wetland and its associated lagoon has to meet all of the following criteria.

- The vegetated wetland lies in a depression with open water for at least part of the year that is adjacent to marine waters. This depression is wholly or partially separated from those marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks along part of its circumference (see Figures 42, 43). The banks can be vegetated or bare.
- The unvegetated areas of the lagoon contain water, in at least some parts of the lagoon, that is saline or brackish (> 0.5 ppt) during most of the year *(needs to be measured near the bottom).*
- The lagoon retains some of its surface water at low tide during spring tides.

The categorization of wetlands in coastal lagoons is based on the size and level of disturbance in the wetland and its buffers. If a wetland in a coastal lagoon meets all three of the following criteria it is Category I. If the criteria are not met it is a Category II wetland.

- The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 78).
- At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.
- The wetland is larger than 1/10 acre (4350 square feet)

Figure 42: A coastal lagoon on Hood Canal with associated wetlands that is separated from the ocean by a vegetated bar of gravel and sand. The lagoon has no surface-water connection to the ocean. Salt water, however, can enter the lagoon through the bar or over the top during storms.

Figure 43: A coastal lagoon with a surface-water connection to Puget Sound. In this case there is a salt marsh separating the lagoon from the ocean as well as a sand bar.

SC 6.0 Interdunal Wetlands

Is the wetland west of the 1889 line known as the Western Boundary of Upland Ownership or WBUO?

Interdunal wetlands form in the "deflation plains" and "swales" that are geomorphic features in areas of coastal dunes. These dune forms are the result of the interaction between sand, wind, water and plants. The dune system immediately behind the ocean beach (the primary dune system) is very dynamic and can change from storm to storm (Wiedemann 1984). These wetlands provide critical habitat in this ecosystem (Wiedemann 1984) but many of the more recently formed wetlands cannot be characterized using the questions on the field form (see p. 9).

Wetlands located west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO) along the coast are considered interdunal wetlands because they have formed only in the last century. These wetlands all have formed as a result of accretions of the beach westward since 1889.

In practical terms that means the following geographic areas:

- Long Beach Peninsula- lands west of SR 103
- Grayland-Westport- lands west of SR 105
- Ocean Shores-Copalis- lands west of SR 115 and SR 109

Interdunal wetlands that are 1 acre or larger are a Category II based on their type. Those between 0.1 and 1 acre are Category III. The rating form for Depressional wetlands should still be filled out, however, to determine if the wetlands have enough habitat structure to be categorized higher.

NOTE: Small interdunal wetlands often form a mosaic behind the primary dunes (see Figures 44, 45). If the interdunal wetlands meet the criteria for wetlands in a mosaic (see p. 15) and described below, then the category should be based on the overall size of the mosaic not an individual patch.

- Each patch of wetland is less than 1 acre (0.4 hectares), and
- Each patch is less than 100 ft (30 m) apart, on the average, and
- The areas delineated as vegetated wetland are more than 50% of the total area of both the wetlands and dunes.

Figure 44: Interdunal wetlands along the Pacific Coast.

Interdunal wetlands that are larger than 1 acre. Individual wetland areas may be smaller than 1 acre, but they form a mosaic that is larger than 1 acre.

Figure 45: Interdunal wetlands along the Pacific Coast.

Mosaic of wetlands less than 0.1 acres in size

Mosaic of wetlands less than 1 acre in size

5.5 RATING THE WETLAND

Each wetland can have several ratings: one resulting from its score for the functions and one or more resulting from special characteristics it may have. The first page of the rating form contains a box for recording each rating. This box should be filled out after completing the form. Pick the "highest" category (i.e. the lowest number) when assigning an overall category for the wetland being rated.

The first page of the rating form also contains a table in which you can summarize the hydrogeomorphic class of the wetland and whether it falls into one of the "special" types of wetlands.